CSC 490 Computer and Network Security
Homework 1

Due 6:00PM, Monday, Feb. 25, 2008

(100 Points)

Name: _____ Student ID: _____

Instructions: Be sure to show sufficient work to justify your answers. Partial credit will be given for partially correct answers and/or incorrect answers that show that a good amount of effort was put forth in trying to arrive at the correct answer, as long as an explanation of the answer is provided. There is a 15% deduction per day late. No credit is given after three days. You are to work individually, and all work should be your own. **Homework submitted in whole or in part by electronic media (email, disk, etc.) will NOT be accepted.**

Questions:

1. [25 Points] Classify each of the following as a violation of confidentiality, of integrity, of availability, or of some combination of thereof.

(1) John copies Mary's homework.

(2) Paul crashes Linda's system.

(3) Carol changes the amount of Angelo's check from $100 to $1,000.

(4) Gina forges Roger's signatures on a deed

(5) Rhonda registers the domain name "addisonwesley.com" and refuses to let the publishing house buy or use that domain name.

(6) Johah obtains Peter's credit card number and has the credit card company cancel the card and replace it with another card bearing a different account number.

(7) Henry spoofs Julie's IP address to gain access to her computer

2. [25 Points] Companies usually restrict the use of electronic mail to company business but do allow minimal use for personal reasons.

(1) How might a company detect excessive personal use of electronic mail, other than by reading it?

(2) It seems reasonable to ban all personal use of electronic mail on company computers. Explain why most companies do not do this.

3. [25 Points] Consider a compute system with three users: Alex, Bob, and Cyndy. Alice owns the file *alicerc*, and Bob and cyndy can read it. Cyndy can read and write the file *bobrc*, which Bob owns, but Alice and only read it. Only Cyndy can read and write the file *cyndyrc*, which she owns. Assume that the owner of each of these files can execute it.

(1) Create the corresponding access control matrix.

(2) Cyndy gives Alice permission to read *cyndyrc*, and Alice removes Bob's ability to read *alicerc*. Show the new access control matrix.

4. [25 Points] Classify each of the following as an example of a mandatory, discretionary, or originator controlled policy, or a combination thereof. Please justify your answers.

(1) The file access control mechanisms of the UNIX operating systems.

(2) A system in which no memorandum can be distributed without the author's consent.

(3) A military facility in which only generals can enter a particular room.

(4) A university registrar's office, in which a faculty member can see the grades of a particular student provided that the student has given written permission for the faculty member to see them.